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TESTING  
CNAS L0446



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# Test Report

Verified code: 283778

Report No.: E20230128179401-4

Customer: Lumi United Technology Co., Ltd

Address: Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Sample Name: Door and Window Sensor P2

Sample Model: DW-S02E

Receive Sample Date: Jan.30,2023

Test Date: Jan.31,2023 ~ Feb.21,2023

Reference Document: EN 50663:2017  
EN 62479:2010

Test Result: Pass

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Reviewed by:

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Approved by: Zhao Zetian

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2023-02-25

Guangzhou GRG Metrology & Test Co., Ltd.

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E20230128179401-4	Original Issue	2023-02-22

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## 1 GENERAL DESCRIPTION OF EUT

### 1.1 APPLICANT INFORMATION

Name: Lumi United Technology Co., Ltd  
Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Address: Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

### 1.2 MANUFACTURER

Name: Lumi United Technology Co., Ltd  
Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

Address: Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China

### 1.3 BASIC DESCRIPTION OF EUT

Product Name: Door and Window Sensor P2

Product Model: DW-S02E

Adding Model: DW-S02D

Models Difference: DW-S02E & DW-S02D are the same on the board, schematic, hardware version, software version, structure and internal photos are same, only the model name is different.

Trade Name: Aqara

Power Supply: DC 3V power supplied by battery

Battery Specification: Model:CR123A  
Norminal Voltage:3.0Vdc  
Rated Capacity: 1400mAh

Frequency Band: 2402MHz – 2480MHz for BLE, 2405MHz-2480MHz for Thread

Modulation Type: O-QPSK for Thread, GFSK for BLE

Antenna Type: PIFA antenna

Antenna Gain: 1dBi

Sample submitting way: ☒ Provided by customer ☐ Sampling

Sample No: E20230128179401-0001, E20230128179401-0006, E20230128179401-00011, E20230128179401-0012

Hardware Version: X0

Software Version: 0.0.0.1

Note: All the tests were performed on the model DW-S02E.

## 2 LABORATORY AND ACCREDITATIONS

### 2.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

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Shenzhen, 518110, People's Republic of China.  
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### 2.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

**USA** A2LA(Certificate#:2861.01)

**China** CNAS(L0446)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

**Canada** ISED (Company Number: 24897, CAB identifier:CN0069)

**USA** FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site,  
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### 3 TECHNICAL REQUIREMENTS SPECIFICATION IN

#### 3.1 RF EXPOSURE EVALUATION

According to its specifications, the EUT must comply with the requirements of the following standards:

EN 62479 – Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)

##### Introduction:

This generic standard applies to low power electronic and electrical apparatus for which no dedicated product – or product family standard regarding human exposure to electromagnetic fields applies.

The frequency range covered is 10 MHz to 300 GHz.

The object of this standard is to demonstrate the compliance of such apparatus with the basic restrictions on exposure of the general public to electric, magnetic and electromagnetic fields and contact current.

##### Compliance criteria:

All electromagnetic fields If the average power emitted by the apparatus operating in the frequency range 10 MHz to 300 GHz is less than or equal to 20 mW and the transmitting peak power is less than 20 W then the apparatus is deemed to comply with the basic restrictions without testing.

Averaging time is 6 minutes in the frequency range 10 MHz to 10 GHz. The average time is equal to  $68/f^{1.05}$  minutes (where  $f$  is in GHz) in the frequency range 10 GHz to 300 GHz.

If the total supply power or the input power to the circuitry producing the greatest emissions in the device is less than or equal to 20 mW then it is assumed that the emitted power is less than 20 mW.

Pulse modulated electromagnetic fields with pulse duration less than 30 micro seconds.

For pulse of duration less than 30 microseconds at frequencies between 300 MHz and 10 GHz, there is also a basic restriction on SA. This is  $2\text{mJ kg}^{-1}$  in any 10g of tissue in the head. For most pulses, the SAR restriction will be more stringent, but for pulses with a repetition frequency of less than 100 Hz, the SA restriction will predominate. For devices producing pulses with repetition rates below 100 Hz, the average power should be less than  $20 \times \text{prf mW}$  (prf in Hz).

### 3.2 EVALUATION RESULTS

Exposure Restrictions							
Mode	Max. Output Power (dBm)	Gain (dBi)	EIRP Power (dBm)	Frequency Band(MHz)	Power Density ( W/m <sup>2</sup> )	Limit of Power Density ( W/m <sup>2</sup> )	Result
BLE-1M	8.45	1.0	9.45	2402-2480	0.02	10	Pass
BLE-2M	8.50	1.0	9.50	2402-2480	0.02	10	Pass
Thread	7.75	1.0	8.75	2405-2480	0.01	10	Pass

Note:

- 1). The BLE and Thread do not support simultaneous transmission.
- 2). The field calculation does not take into account the antenna size, which is assumed to be a point source. An ideal isotropic antenna is used as a reference to compare the performance of practical antennas:  $P$  watts is radiated, from a point, uniformly over the surface of sphere of radius  $R$ . Assumed use distance from EUT to Human, **20 cm** separation distance warning is required.

The Formula

$$S = \frac{P}{4\pi R^2}$$

Whereas,

$S$  = power density

$R$ =distance from observation point to the antenna (m)

$P$ = The maximum e.i.r.p of the transmitter (W) .

In this section, the power density at 20 cm location is calculated to examine if it is lower than the limit.

----- End of Report -----